

DOCKET NO.: MSFT-2738/138343.02
Application No.: 10/624,726
Office Action Dated: June 6, 2006

Amendment to the Drawings

Please replace the existing Fig. 2 with the attached new Fig. 2.

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REMARKS

According to the current Office Action, dated June 6, 2006, claims 1-5 and 10-38 are pending in the Application. Claims 1, 3-5, 10, 12-14, 15, 17-19, 20-29, and 34-38 have been rejected under 35 U.S.C. § 101. Claim 34 has been rejected under 35 U.S.C. § 112, ¶ 2. Claims 1-2, 10-11, and 34-36 have been rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6,226,647 (Venkatasubramanian et al. or “Ven”). Claims 15-20, 22-23, 25-26, 28-29, and 37 have been rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6,665,682 (DeKimpe et al. or “DeKimpe”). Claims 30-31, and 38 have been rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6,366,904 (BenHadda et al. or “BenHadda”). Claims 3-5 and 12-14 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Ven in view of DeKimpe. Claims 21, 24, and 27 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over DeKimpe in view of U.S. Patent No. 6,438,537 (Netz et al. or “Netz”). Finally, claims 32-33 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over BenHadda in view of DeKimpe.

As an initial matter, Applicants respectfully request acknowledgement of the figures filed on July 23, 2003. If the Examiner has any questions or concerns, the Applicants ask the Examiner contact the Undersigned at 206-903-2461, Monday – Friday, 8am – 6pm. The Applicants address each of the rejections in the Office Action in the sequence they appear therein.

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Telephonic Interview, November 3, 2006

On November 3, 2006, examiner Cam Y T. Truong and the undersigned conducted a telephonic interview. The examiner produced the following interview summary:

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached; or any other comments: Applicant's representative argued that claim 1 is statutory. Examiner pointed that claim 1 does not contain any tangible result. Thus, claim 1 is nonstatutory. Applicant's representative argued that the prior art does not teach "a subset of the database for each member of an input data set specified by the query". Examiner pointed that Ven teaches this claimed limitation as shown in fig. 3. Applicant's representative argued that the prior art does not teach "without the query specifying any calculated member of the database". Examiner will review the prior art of the record for further consideration.

The Applicants have amended the claims to overcome the 35 U.S.C. § 101 rejection per the telephonic discussion. The Applicants also note that the discussion focused on Figs. 7(a) and 7(b), and not on Fig. 3, as is stated above (Fig. 3 illustrates a sequence of operations for determining a two-pass value measure result in accordance with the disclosed subject matter in the Van reference).

The examiner has explained that the "Year" component in Fig. 7(b) is a subset of the query, and that "Year" is also a member of Query 1. The Applicants have a better understanding of how the examiner is mapping the Van reference onto the claimed subject matter, and provide an explanation below as to why the claims patentably define over the cited references.

Amendment to the Written Description

The Applicants have addressed minor typographical errors in the written description. No new matter has been added.

Replacement of Drawings

The Applicants have provided a replacement figure for Figure 2, since the element 200 referenced in the written description was not illustrated in Figure 2. No new matter has been added.

Rejection Under 35 U.S.C. § 101.

The Applicants have amended the rejected claims per the “REVISED INTERIM UTILITY GUIDELINES” by adding various limitations specific to each claim, so that these claims result in producing a concrete, useful, and tangible result.

Specifically, regarding claim 1, the Applicants have incorporated the limitation of claim 2 into claim 1 (and thereafter canceled claim 2), where claim 2 was considered in proper form to overcome the present rejection. Applicants submit that all claims depending from claim 1, namely, claims 3-5 and 35 overcome the present rejection.

Regarding claim 10, the Applicants have incorporated the limitation of claim 11 into claim 10 (and thereafter canceled claim 11), where claim 11 was considered in proper form to overcome the present rejection. Applicants submit that all claims depending from claim 10, namely, claims 12-14 and 36 overcome the present rejection.

Regarding claim 15, the Applicants have incorporated the limitation of claim 16 into claim 15 (and thereafter canceled claim 16), where claim 16 was considered in proper form to overcome the present rejection. Applicants submit that all claims depending from claim 15, namely, claims 17-19 and 37 overcome the present rejection.

Regarding claims 20-29, the Applicants have added the limitation of “wherein processing the query includes generating an output data set based on the determination” to claims 20, 23, and 26. This limitation produces a concrete, useful, and tangible result. Thus,

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claims 20, 23, and 26, and their dependent claims, claims 21-22, 24-25, and 27-29, respectively, overcome the present rejection.

Regarding claim 30, the Applicants have added the limitation of “wherein processing the query includes generating an output data set based on the directive of the query extension” to claim 30. Following this amendment, claim 30, and its dependent claims 31-33, overcome the present rejection.

Lastly, regarding claim 34, the Applicants have added the limitation of “processing the query includes generating an output data set to include the members of the input data set and the encompassed calculated members of the database if there are any of the calculated members” to claim 34. Thus, claim 34 overcomes the present rejection.

Withdrawal of this rejection is earnestly solicited. If the Examiner has any questions or concerns regarding these remarks, the Applicants respectfully ask that the Examiner contact the undersigned at 206-903-2461.

Rejected under 35 U.S.C. § 112, ¶ 2

The Applicants have addressed the Examiner’s rejection by amending claim 34 and by adding the following underlined limitation in the following element: “the query indicating via at least one extension that calculated members of the database be used....” Withdrawal of this rejection is earnestly solicited.

The Applicants also note that claims 35-38 do not dependent from claim 34, as is stated in the Office Action, p. 3. Claim 34 is the only independent claim, and claim 35 depends from claim 1, claim 36 depends from claim 10, and claim 37 depends from claim 15.

Rejection Under 35 U.S.C. § 102(e)

Claims 1, 10, 15, 20, 23, 26, 30, and 34 are the independent claims. The Applicants address each of these claims in the order the rejections appear in the Official Action.

Regarding claim 1, Ven discloses record management system that provides for displaying a two-pass value measure result in a multi-dimensional view containing cells. According to Ven, a one-pass value is a measure result that is obtained by performing some type of processing operation on a set of data records. A two-pass value is a measure result that is derived from processing a set of one-pass values. Examples of two-pass values include relative percentages, relative rankings, running total of one-pass values, and so on.

The record management system identifies a set of cells in the multi-dimensional view. These set of cells include all cells needed for determining the two-pass value measure result. The record management system determines a one-pass value for each cell in the set of cells. Based on the one-pass values, the record management system determines the two-pass value measure result.

The Examiner cites Figs. 7a-7b, col. 11, ll. 2-20 as allegedly anticipating claim 1. These citations from Ven disclose the generation process for a multi-dimensional view. First, an input is obtained from a user that indicates the dimensions and measures that are to be called for by a query operation. Once the desired dimensions and measures are retrieved, the query request instructs the management system to extract records from the database that contain values associated with the dimensions and measures. These results are provided to a master table.

Thus, for example, a query can be performed in which records are retrieved that relate the dollar value of products sales in different regions of the U.S. in different years. In this

example, a query request is issued to the management system. The query request causes the management system to find and return records that includes values associated with a year dimension, region dimension, product dimension, dollar dimension, and so on. These records are received by the query engine and maintained in a master table shown in Fig. 7a.

However, retrieving various records and storing them in a master table falls short of teaching the claimed subject matter:

1. A computerized method implemented in a computing device for processing a query directed to a multidimensional database comprising:
 - determining a subset of the database for each member of an input data set specified by the query; and*
 - processing the query using any calculated members of the database that is within at least one of the subsets of the database, without the query specifying any calculated members of the database.

(emphasis added). First, no determination is made for “*a subset ... for each member...*”

(claim 1)(emphasis added). The Specification explains, in one exemplary and non-limiting example, what this means:

Each member of a particular dimension has a "hierarchical context" and a "maximal hierarchical context. More specifically, the 'hierarchical context' HC.sub.S(m) of member m in set S is the contiguous subset of S, starting with m and continuing in consecutive order through all the descendants of m in S. A 'maximal' hierarchical context HC.sub.S(m) if there is no m' in S such that HC.sub.S(m') is included in HC.sub.S(m). Using the symbol .SIGMA. to denote the set juxtaposition operator, which builds the juxtaposition of the members of a number of sets, S=.SIGMA.HC.sub.S(m). Because the HCs are defined as mathematical trees, set S is thus a forest.

(Specification, paragraph 0032). All Ven discloses in Figs. 7a and 7b (and in col. 11, ll. 2-20) is the state of a master table shown in Fig. 4 after the master table is updated to account for a response from a first query submitted by the record management system, and then the state of the query maps after the query map is updated to account for the first query.

However, this disclosure does not map onto (i.e. it does not disclose) “determining a *subset* of the database for *each* member of an input data set...” (claim 1)(emphasis added).

Furthermore, the cited passage and Figures do not teach: “processing the query using any *calculated* members of the database that is within at least one of the subsets of the database, *without* the query *specifying any calculated members* of the database” (claim 1)(emphasis added). The Examiner states, at p. 4 of the Official Action, that Ven could be interpreted as “using TCR [sic] or East as calculated members of the database within the first record or row of the database.” However, no disclosure is made in Ven regarding VCR (Applicants assume the Examiner meant “VCR” not “TCR”) or East being such calculated member. Moreover, it is not clear how Ven discloses “processing the query using any calculated members of the database that is within at least one of the subsets of the database, *without the query specifying any calculated members* of the database.” No such mechanisms are disclosed in Ven. VCR and East would need to be specified in Ven for the Examiner’s argument to work – assuming the other missing elements mentioned above could be supplied – which they are clearly not. Thus, Ven a fortiori falls short of teaching the recited subject matter in claim 1 and its dependent claims 3-5 and 35.

Next, claim 10 recites:

10. A computer-readable medium having computer-executable instructions configured to be implemented in a computing device for performing a method for processing a query directed to a multidimensional database, the method comprising:

determining a *subset* of the database for *each member* of an input data set specified by the query; and

processing the query using any *calculated members* of the database that are within the at least one of the subsets of the database, *without the query specifying any calculated members of the database*.

It can be seen that claim 10 recites similar limitation to that of claim 1, and therefore claim 10 (and dependent claims 12-14 and 36) patentably defines over Ven for similar reasons.

Next, claim 34 recites:

34. A computerized method implemented in a computing device for processing a query directed to a multidimensional database comprising:
 receiving a query specifying an input data set, the query *indicating via at least one extension* that calculated members of the database be used, and the query not specifying any calculated members of the database;
 determining a subset of the database for each member of the input data set specified by the query;
 identifying if there are any calculated members of the database corresponding to the subsets of the database; and
 processing the query, if there are any calculated members of the database corresponding to the subsets of the database, using the identified calculated members.

(emphasis added). Claim 34 recites that the query indicates via at least one extension, for example, the disclosed “AddCalculatedMembers” extension, that calculated member of the database should be used.

No such disclosure in Ven is made in the cited passages in the Official Action. Aside from the cited passages discussed above already, the Examiner additionally cites col. 2, ll. 15-27. This passage merely provides background information in how data records that are used as the ultimate basis for generating a multi-dimensional view are retrieved from database or other sources, and so on. However, any of the passages cited as allegedly anticipating claim 34, do not address the limitation of “query indicating via at least one extension ... calculated members” nor the act of “determining a subset ... for each member” (claim 34). Thus, claim 34 patentably defines over the cited art.

Next, regarding claim 15, DeKimpe discloses data definition language (DDL) extension layer that provides extended DDL capabilities for relational databases with logging. In DeKimpe, commands are executed in a computer to perform a database operation on a

relational database stored on a data store connected to a computer. For each command, one or more compensating operations is logged, such that each compensating operation corresponds to an action to be performed for rollback or commit. After logging, each command is committed as the command is executed.

In the passages cited by the Examiner in the Official Action (p. 7), DeKimpe discloses solving the problem encountered by an application when working on different relational databases. The DLL extension layer uses logging to enable applications to avoid the problems associated with techniques different relational database systems use for performing commits and rollbacks. For example, claims 1-7 cited by the Examiner (Official Action, p. 7), recite that commands, which represent actions to be performed for rollback or commit (col. 5, ll. 46-47), are utilized by receiving a plurality of commands directed to a relational database and including with those commands DDL statements. Then, compensating operations are logged in a table for each DDL statement, where each compensating operation corresponds to an action to be performed for rollback or commit. After logging, each command is committed as the command is executed. Furthermore, such commands can drop tables, and so on.

Turning now to the limitations of claim 15, it recites:

15. A computerized system comprising:
- a processor and a computer-readable medium;
 - an operating environment executing on the processor from the computer-readable medium; and
 - an OLAP server executing within the operating environment and maintaining a multidimensional database, wherein the OLAP server processes a database query by *determining a subset of the database for each member of an input data set specified by the query*; and

including in the processing of the query any calculated members of the database that are within the at least one of the subsets of the database, without the query specifying any calculated members of the database.

The Applicants submit that nowhere in its disclosure of commands, DDL statements, and compensating operations does DeKimpe teach “determining *a subset* of the database *for each member* of an input query” (claim 15). Nor, anywhere does DeKimpe teach “including in the processing of the query any *calculated members* of the database that are within the at least one of the subsets of the database, *without the query specifying any calculated members of the database*” (claim 1). DeKimpe simply does not disclose calculated members, and certainly not ones that don’t have to be specified. Thus, claim 15 and its dependent claims, 17-19 and 37, patentably define over the cited art.

Regarding claim 20, it recites:

A computerized method implemented in a computing device for processing a query directed to a multidimensional database, wherein the query specifies an input data set, the method comprising:

determining whether the query includes *an extension directing an OLAP server to automatically exclude calculated members of the input data set during the processing of the query*; and

based on the determination, *processing the query using non-calculated members specified by the input data set*.

Nowhere does DeKimpe teach “*an extension directing an OLAP server to automatically exclude calculated members of the input data set during the processing of the query*” (claim 20). The DLL extension layer does not “direct” a server to “automatically” “exclude” “calculated” “members,” etc. DeKimpe discloses mechanisms for rollbacks and commits, not for processing queries in the manner recited above.

Nor does DeKimpe teach “*an extension directing an OLAP server to automatically exclude calculated members of the input data set during the processing of the query*” (claim 20). Instead, DeKimpe performs rollback and commit functions such as dropping tables. Thus, claim 20 and its dependent claims, 21-22, patentably define over the cited art.

Regarding claims 23 and 26, with dependent claims 24-25 and 27-29, respectively, these claims recite similar limitations to that of claim 20, and therefore patentably define over DeKimpe for similar reasons.

Lastly, regarding claim 30, BenHadda discloses machine-implemented mechanisms for automatic extension of results obtained when querying a database of relationally organized data expressed in tabular row and column format. A query is identified by adding column variables to the query that show a high association with the initial query designated variables. The modified query is then used to access the table. This repeats until a stop condition is sensed. Tuples of values that are responsive to the modified query are included in an extended response if they are significantly similar to tuples elicited by the original query. The number of variables and tuples can be reiteratively extended.

In contrast to this disclosure, claim 30 recites:

A computerized method for processing a query directed to a multidimensional database comprising:

parsing a received query to identify whether the query contains a query extension that indicates specifically how calculated members should be handled in processing the query;

when a query directive of the query extension is identified that directs that calculated members be excluded from the output of the query then processing the query using the non-calculated members specified by the input data set;

when a query directive of the query extension is identified that directs that calculated members be included in the output of the query then performing at least the steps of:

determining a subset of the database for each member of an input data set specified by the query,

processing the query using any calculated members of the database that is within the at least one of the subsets of the database, without the query specifying any calculated members of the database; and

wherein processing the query includes generating an output data set based on the directive of the query extension.

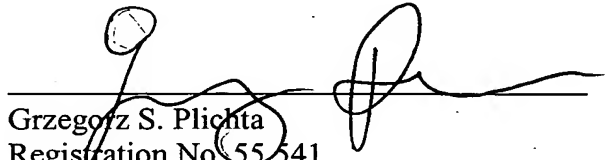
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The examiner cites col. 6, ll. 22-67 of BenHadda et al. as allegedly meeting the first emphasized element. However, this passage only discloses “an extension of the query *results* ... [that] leads to a new table.” *Id.* In contrast, claim 30 recites “parsing a received query to identify whether the *query contains a query extension* that indicates specifically how calculated members should be handled in processing the query.” Thus, there’s a patentable difference between claiming a *query* that contains a query extension, on the one hand, and a disclosure of an extension of query *results* (but not the query itself), on the other. Thus, Applicants submit that claim 30, and its dependent claims 31-33, patentably define over BenHadda et al.

Rejection Under 35 U.S.C. § 103(a)

Per the discussion above, since the independent claims define over the cited art by reciting elements missing in the cited art, any claims depending therefrom are also patentable. Thus, the present § 103(a) rejection of some of the dependent claims is rendered moot in light of the remarks made above.

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